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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,762	02/20/2002	Dong-Kyun Seo	P56645	3466

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Robert E. Bushnell
Suite 300
1522 K Street, N.W.
Washington, DC 20005

EXAMINER
BERCK, KENNETH A

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/077,762	DONG-KYUN SEO	
	Examiner	Art Unit	
	Ken A Berck	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (US 5118984).

Regarding claim 1, Saito discloses a metal cathode for an electron-beam device, the metal cathode comprising an electron-emitter including a first alloy, the first alloy comprising barium being in the range of 0.1 to 20%, a metallic mobilizer in the range of 0.1 to 20% selected from the group consisting of Mo, Hf, Zr and Th, a metal with a difference in atomic radius of at least 0.4 A from the atomic radius of any one of Pt and Pd, in the range of 0.01 to 30% and at least one element selected from the group consisting essentially of Pt.

Regarding claim 2, Saito discloses the metal is at least one member selected from the group consisting essentially of Ca, Sr and Ce (column 3, lines 50-68).

Regarding claim 6, Saito discloses the cathode assembly being indirectly heated.

Regarding claim 16, Saito discloses a metal cathode for an electron-beam device, the metal cathode comprising an electron-emitter including a first alloy, the first alloy comprising barium being in the range of 0.1 to 20%, a metallic mobilizer in the range of 0.1 to 20% selected from the group consisting of Mo, Hf, Zr and Th, a metal

with a difference in atomic radius of at least 0.4 A from the atomic radius of any one of Pt and Pd, in the range of 0.01 to 30% and at least one element selected from the group consisting essentially of Pt.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-5, 7-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 5118984) in view of Frank et al. (US 4533852).

Saito discloses all of the above claim limitations but fails to clearly point out the metal being an alloy of Ce, Os, Ir and Ru and includes Ru in the range of 1 to 10%.

Regarding claim 3, Frank discloses (column 2) the metal being an alloy of Ce and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claim 4, Frank discloses the metal being an alloy of Ce and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claim 5, Saito discloses the cathode assembly being indirectly heated.

Regarding claim 7, Frank discloses the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claim 8, Saito discloses the metal is at least one member selected from the group consisting essentially of Ca, Sr and Ce (column 3, lines 50-68).

Regarding claim 9, Frank discloses (column 2) the metal being an alloy of Ce and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claim 10, Frank discloses the metal being an alloy of Ce and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claim 11, Saito discloses the layer coated on the electron-emitter has a thickness in the range of 500 to 30,000 A.

Regarding claim 12, Saito discloses the layer coated on the electron-emitter has a thickness in the range of 1000 to 10,000 A.

Regarding claim 13, Frank discloses (claim 23) the alloy of Os and Ru includes Ru in the range of 1 to 10% in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the alloy of Os and Ru includes Ru in the range of 1 to 10% in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claims 14-15, Saito discloses the cathode assembly being indirectly heated.

Regarding claim 17, Frank discloses the metal being an alloy of Ce, Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cathode of Saito with the metal being an alloy of Ce,

Os and Ir in order to achieve a long life, high emitter concentration and high mechanical stability, as taught by Frank.

Regarding claims 18-19, Saito discloses the cathode assembly being indirectly heated.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken A Berck whose telephone number is (703)305-7984. The examiner can normally be reached on Mon-Fri 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

kab
June 26, 2003

NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800